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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/023,559 | 12/18/2001 | Kalle Asikainen | 460-010760-US(PAR) | 2670 |

2512 7590 09/06/2006

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FAIRFIELD, CT 06824

| EXAMINER |
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JAMAL, ALEXANDER

| ART UNIT | PAPER NUMBER |
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2614

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/023,559 | ASIKAINEN ET AL. | |
| | Examiner | Art Unit | |
| | Alexander Jamal | 2614 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Based upon the submitted amendment (7-10-2006), the examiner notes that claims 2,7,9,11,12,18 have been amended.
2. Examiner withdraws all rejections from the previous office action and submits a new, non-final set of rejections.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. **Claims 1-6,9-11,13-17,19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (specification pages 1,2), and further in view of Heck (4653117).

As per **claim 1**, applicant's admitted prior art discloses a direct conversion receiver for carrier modulated signals. The receiver performing the method of mixing (specification pages 1,2) (page 1 lines 25-30) local oscillator signals to generate baseband signals which are then filtered via capacitors (page 2 lines 30-35) to filter out the DC component. It further discloses that digital modulation is used and that modulation may

comprise ASK,FSK or PSK (page 1 lines 5-15). However, applicant' admitted prior art does not disclose offsetting the local oscillator frequency by an offset close to the difference between the carrier and a null frequency in order to center the notch at the zero frequency.

Heck teaches a direct conversion receiver (ABSTRACT). Heck teaches an embodiment of the receiver where the input signal is down-converted by using the carrier frequency plus a small offset such that any beat (DC offset) that occurs will be below the lowest modulation frequency (in a spectral null) (Col 6 line 64 to Col 7 line 30). It would have been obvious to one of ordinary skill in the art at the time of this application that the prior art receiver disclosed by applicant could offset the local oscillator frequency for the purpose of eliminating the effect of DC offset on the information carrying signal.

As per **claim 2**, claim rejected for same reasons as claim 1 rejection. Applicant's admitted prior art (specification page 2) discloses that the received signal is split into in-phase and quadrature signals that are processed with a signal from an oscillator via mixing means (a first and second mixer, one for the In-phase, and one for the quadrature) (page 1 line 25 to page 2 line 10). Each mixed signal is then filtered with the notch filters (a first and second filter) (page 2 lines 30-37), and each signal is then demodulated and then DC filtered via capacitors. The oscillator in Heck is offset by any frequency which will put the zero frequency below the lowest modulation frequency (in a spectral null). Examiner notes that the signaling rate or any multiple of it may be used to shift the spectral null to the receiver null.

As per **claims 9,11**, claims are rejected as a method performed by the device of the claim 2 rejection.

As per **claims 13,19** claims are rejected for the same reasons as the claim 1,2 rejections.

As per **claims 3,5,10,14,15,16,20,21**, applicant's specification discloses the use of a third and fourth low pass filter, one for the In-phase signal and one for the quadrature, and further discloses that the notch filters at the output of the mixers may comprise capacitors (high pass filters) (page 2 lines 1-10,30-37).

As per **claims 4,6,17**, claims are rejected for same reasons as claim 2.

5. **Claims 7,8,12,18** are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (specification pages 1,2) and Heck (4653117), and further in view of Rapeli (6510313).

As per **claim 7**, applicant's admitted prior art in view of Heck discloses claim 7 as per the rejections of claims 1-6 above. However they do not disclose that the direct conversion receiver is used in a GPS system.

Rapeli discloses that a CDMA direct conversion receiver system can be implemented as a GPS system. It would have been obvious to one of ordinary skill in the art at the time of this application that the direct conversion receiver may be used as a GPS

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receiver for the reason that the that the direct conversion receiver can successfully receive the carrier modulated CDMA signal used in the GPS system.

As per **claims 12,18**, claims are rejected for the same reasons as the claim 7,3,5,10 rejections.

As per **claim 8**, claim rejected for same reasons as claims 3,5,10.

Response to Arguments

1. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection. Examiner offers a response to applicant's argument concerning the Gehring reference (remarks page 12).


Examiner notes that the Ghering reference teaches to offset an oscillator frequency in order to translate the received modulating signal spectrum completely away from any possible DC offset. Examiner reads any part of the spectrum which does not contain signaling from the information signal as a spectral null for that signal.

Examiner additionally notes that Ghering cites the Heck reference and notes that the Heck reference teaches aligning the DC zero frequency with a line-spectra (spectral null) between each modulating signal frequency range (GHERING: Col 2 lines 34-55). This is the same function that is claimed by the applicant.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER

AJ
August 28, 2006